

**What is Claimed is:**

1. A system comprising:

a transmitter device adapted to transmit a data signal;

5 a receiver system adapted to receive and regenerate the data signal; and

a communications link coupled to the transmitter device and the receiver system, the data signal being susceptible to distortions of phase and amplitude during transmission across the communications link,

wherein the receiver system includes a receiver device adapted to receive the potentially distorted data signal from the communications link and a processor electrically coupled to the receiver device and adapted to receive the distorted data signal from the receiver device, regenerate the data signal to compensate for the effects of the communications link on the data signal, and output the regenerated data signal.

2. The system of claim 1, wherein the receiver system further comprises a driver device electrically coupled to the processor and adapted to transmit a data signal to the communications link.

3. The system of claim 1, further comprising,

a transceiver system adapted to receive, regenerate and transmit a data signal, the transceiver system includes the transmitter device, a receiver device adapted to receive the potentially distorted data signal from the communications link, and a processor electrically coupled to the transmitter device and the receiver device and adapted to receive the distorted data

signal from the receiver device, regenerate the data signal to compensate for the effects of the communications link on the data signal, and output the regenerated data signal.

4. The system of claim 1, wherein the transmitter device includes a driver device.

5. The system of claim 1, wherein the receiver system further comprises a driver device electrically coupled to the processor and adapted to transmit the regenerated data signal to a subscriber.

6. The system of claim 1, wherein the transmitter device is a subscriber transmitter device.

7. The system of claim 3, wherein the transceiver system further comprises a driver device electrically coupled to the processor and adapted to transmit the regenerated data signal to a central node.

8. The system of claim 1, further comprising,

a transceiver system adapted to receive, regenerate and transmit the data signal, the transceiver system includes the transmitter device, a receiver device adapted to receive a potentially distorted data signal from a central node, and a processor electrically coupled to the transmitter device and the receiver device and adapted to receive the distorted data signal from the receiver device, regenerate the data signal to compensate for the effects of transmission from the central node, and output the regenerated data signal.

9. The system of claim 1, wherein the data signal comprises digitally encoded data signal.

10. The system of claim 1, wherein the communications link comprises at least one of unshielded twisted pair cable, coaxial cable, and fiber optic cable.

11. The system of claim 1, wherein the data signal is transmitted across the communications link at transmission rates at least as high as 44.736 Mbps.

12. The system of claim 4, wherein the communications link is at least 18,000 feet long.

13. A system comprising:

a driver device adapted to transmit a data signal, the data signal having transmission rates at least as high as 44.736 Mbps;

a receiver device adapted to receive the data signal; and

a communications link coupled to the driver device and the receiver device, the data signal being susceptible to distortions of phase and amplitude during transmission across the communications link, the communications link is at least 18,000 feet long.

14. The system of claim 13, wherein the communications link comprises at least one of unshielded twisted pair cable, coaxial cable, and fiber optic cable.

15. The system of claim 13, further comprising,

5 a receiver system adapted to receive, regenerate and transmit the data signal, the receiver system includes the receiver device adapted to receive the potentially distorted data signal from the communications link and a processor electrically coupled to the receiver device and adapted to receive the distorted data signal from the receiver device, regenerate the data signal to compensate for the effects of the communications link on the data signal, and output the regenerated data signal.

10 16. The system of claim 15, wherein the receiver system further comprises a driver device electrically coupled to the processor and adapted to transmit the regenerated data signal to a subscriber.

15 17. The system of claim 15, wherein the receiver system further comprises a driver device electrically coupled to the processor and adapted to transmit the regenerated data signal to a central node.

18. The system of claim 13, wherein the data signal comprises digitally encoded data signal.